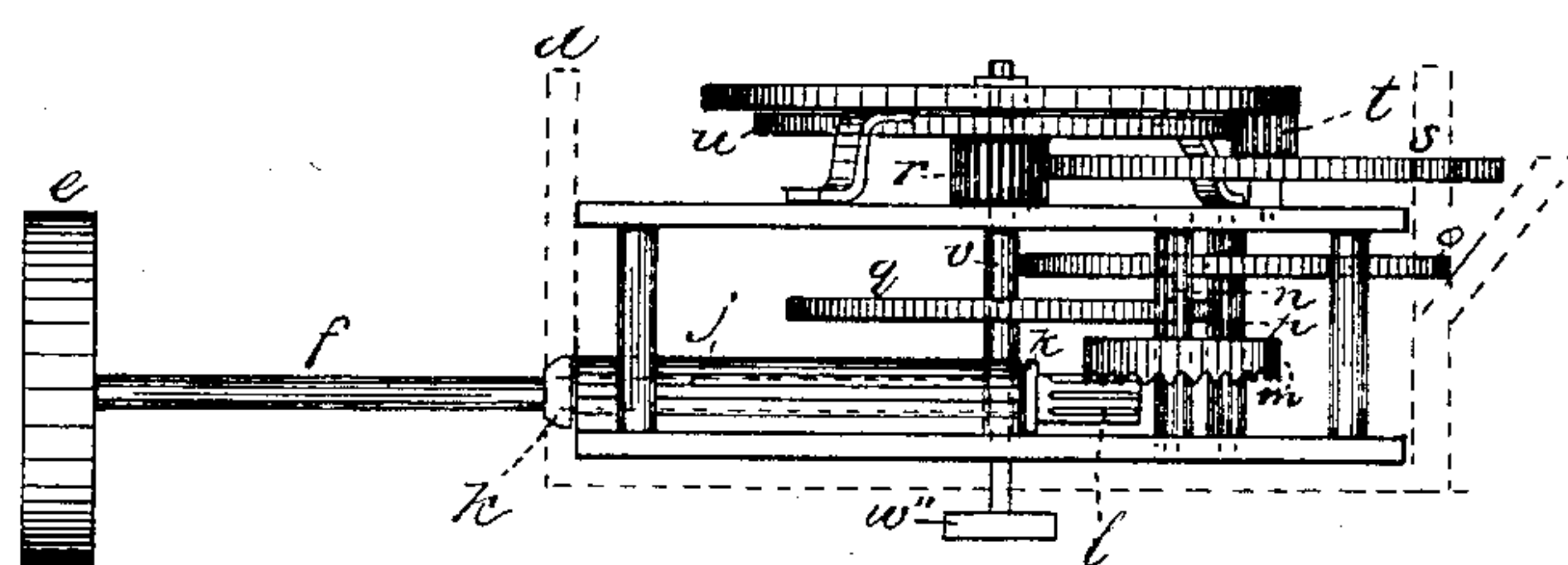
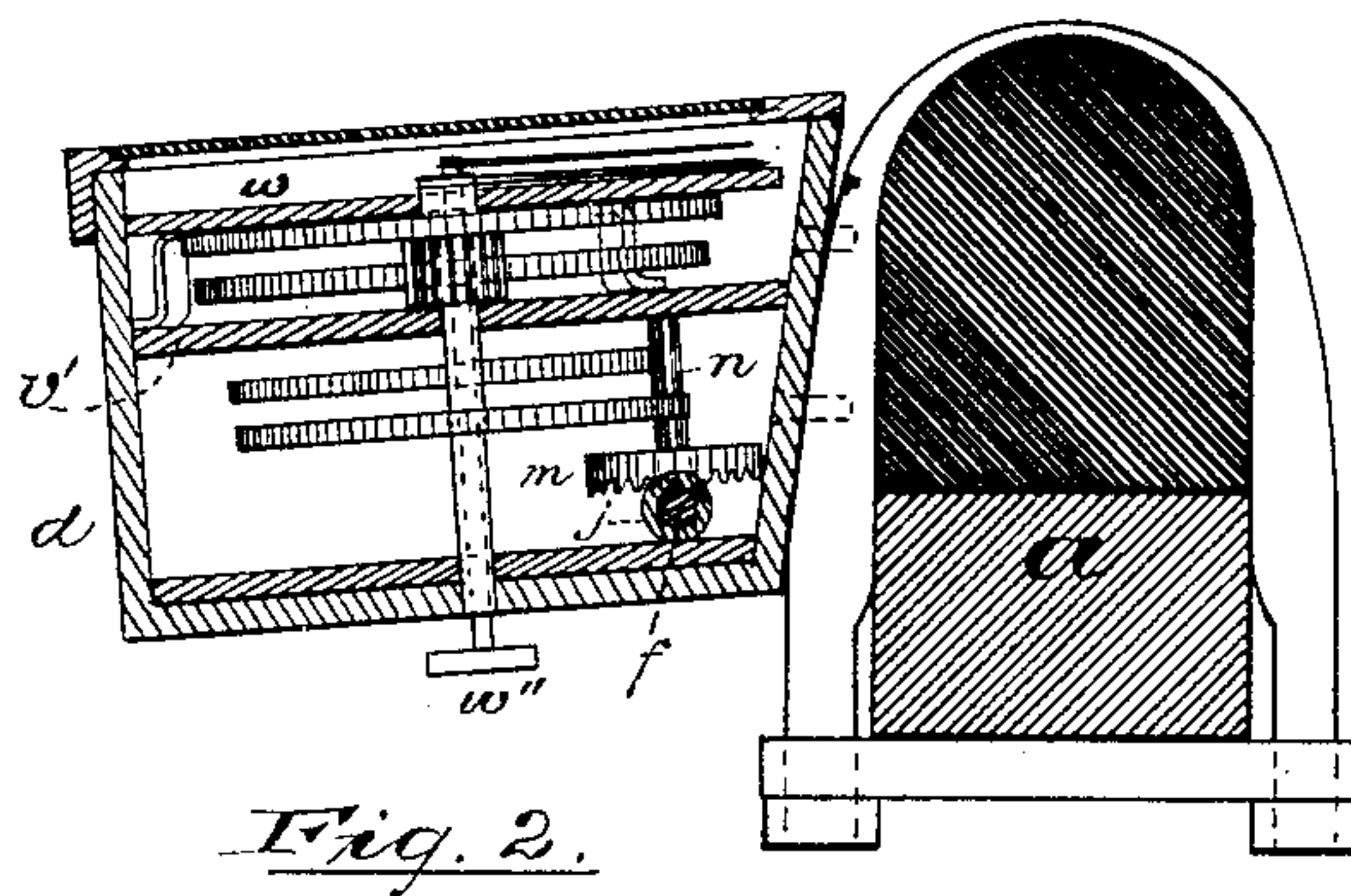
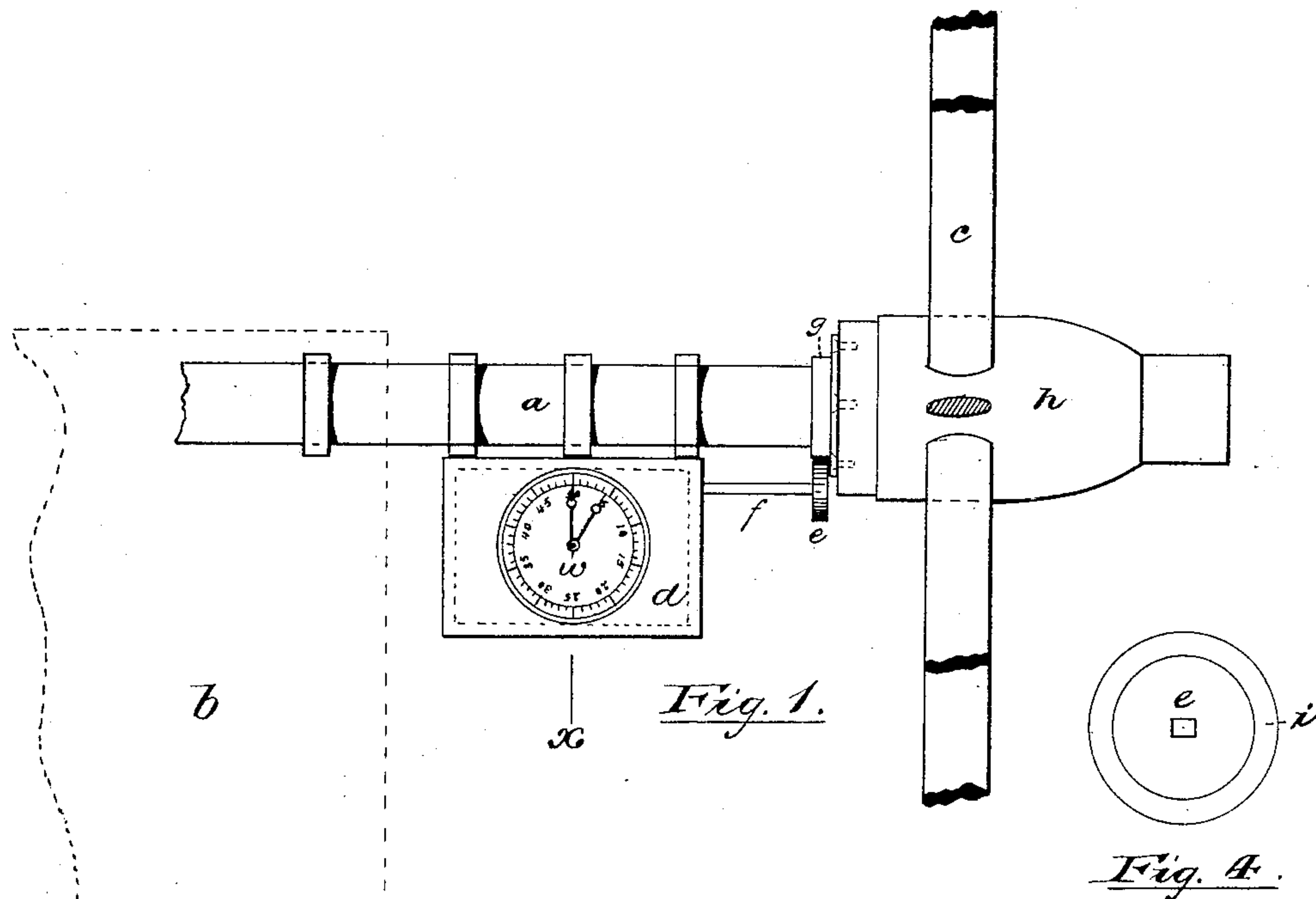


(No Model.)

C. F. CHURCH
ODOMETER FOR VEHICLES.

No. 315,727.

Patented Apr. 14, 1885.



Attest:

F. F. Campbell.
Edward G. Kempf.

Fig. 3.

Inventor:

Charles F. Church,
by Drake & Co., Attys.

UNITED STATES PATENT OFFICE.

CHARLES F. CHURCH, OF NEWARK, NEW JERSEY.

ODOMETER FOR VEHICLES.

SPECIFICATION forming part of Letters Patent No. 315,727, dated April 14, 1885.

Application filed May 15, 1884. (No model.)

To all whom it may concern:

Be it known that I, CHARLES F. CHURCH, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Odometers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

The objects of this invention are to provide a more durable and reliable device for indicating the distance of travel of a carriage or other vehicle; to enable the dial to be observed with greater convenience, and to reduce the cost of construction.

The invention consists in the arrangements and combinations of parts, substantially as will be hereinafter set forth, and finally embodied in the clauses of the claims.

Referring to the accompanying drawings, in which similar letters of reference indicate like parts in each of the several figures, Figure 1 is a plan showing a box having a dial-plate and indicating mechanism arranged on a vehicle-axle, and having a friction-wheel engaging with the hub of the wheel. Fig. 2 is a sectional view taken through line *x*. Fig. 3 is a side elevation showing the said mechanism detached from its box, and Fig. 4 is a detail plan of the said friction-wheel.

In said drawings, *a* is an axle of a vehicle, which latter is represented in outline at *b*. *c* is the wheel revolving on said axle, from which wheel the power for operating the indicating mechanism is derived. Said indicating mechanism is arranged in a box, *d*, which is preferably of metal, and is attached to the axle at a point thereon near the wheel *c*, between the same and the line of the carriage-body, as shown in Fig. 1, so that the dial may be readily viewed by the occupant of the vehicle by simply looking over the side of said body. The train of cog-wheels and pinions composing the indicating mechanism, and by which the fast movement of the vehicle-wheel is reduced to the slow motion of the indicating-hands, is actuated by a friction-wheel, *e*, working on a shaft, *f*, projecting from the box *d*.

Said wheel *e* engages with a collar or flange, *g*, secured to the inner end of the hub *h*. The said friction-wheel is provided with a rubber tire, *i*, Fig. 4, which is sufficiently thick to allow for inequalities in the band *g*, and to avoid a breaking or bending of the shaft should a stone or other extraneous substance be thrown between said wheel *e* and the band or flange *g*. The shaft *f* is firmly arranged in a tubular bearing, *j*, in the box, and is provided with shoulders *kk*, to prevent longitudinal motion, and a cog, *l*. The motion derived from the flange or band *g* is transmitted by means of the parts *e f l* to the train of cogs and pinion *m n o p q*, which operate a center shaft, *v*, projecting above the plate *v'*, and carries the fast hand or pointer for indicating on the dial *w* the fractional parts of a mile. Above the plate *v'*, and on the center shaft, is arranged the cog *r*, which transmits motion through the cog *s* and pinion *t* to the face-wheel *u*, a hub of which works in the dial-plate *w* and around the center shaft, *v*, and carries the slow-moving hand for indicating the miles the carriage has traveled, it being understood that the fast hand makes one entire revolution around the dial-plate while the slow-moving hand travels from one graduation-mark to the next. The box *d* is provided with a lid or cover having the face thereof of glass, to enable the dial-plate to be seen and yet exclude the dust, &c., from access to the working parts within the box.

In operating the device, the parts being placed in their proper relative positions and the hands set back by means of the finger-piece *w''*, projecting from the under side of the box and carried by the center shaft, as shown in Fig. 2, the engagement of the friction-wheel *e* with the revolving collar or band *g* causes the shaft *f* to revolve, and with it the train of gear-wheels. The proportions of the parts are such that as the periphery of the wheel *c* traverses a mile the fast hand makes one revolution of the dial and the slow hand one space between two of the graduation-marks of the said dial.

Having thus described the invention, what I claim as new is—

1. In combination, in a device for indicating the distance of travel of a vehicle, the box *d*, adapted to be secured to a vehicle-axle, and having a glass face and dial-plate, *w*, the fric-

tion-wheel *e*, projecting shaft *f*, tubular bearing *j*, stop *k*, cog *l*, cog *m*, pinion *n*, cog *o*, pinion *p*, cog *q*, working on the center shaft, *v*, and operating fast hand for indicating the
 5 fractional parts of a mile, the cog *r*, working on said center shaft, engaging the cog *s*, the pinion *t*, and face-wheel *u*, the hub of which carries the slow hand for indicating the miles, all said parts being arranged and operating
 10 substantially as and for the purposes set forth and shown.

2. In combination with the vehicle-axle *a* and wheel *c*, revolving thereon, the box *d*, having a dial-plate, indicating-hands, and a train
 15 of cog-wheels actuating the same, a shaft, *f*,

engaging one of said train of cog-wheels at one end, projecting from said box and carrying a friction-wheel at the other, and said friction-wheel having its periphery engage the periphery of the hub of the wheel *c*, or the band *g* thereof, all said parts being arranged and operating substantially as and for the purposes set forth. 20

In testimony that I claim the foregoing I have hereunto set my hand this 6th day of 25 May, 1884.

CHAS. F. CHURCH.

Witnesses:

CHARLES H. PELL,
 F. F. CAMPBELL.